

WHAT IS CLAIMED IS:

1. A method for sensing the state of an eye of a subject, the method comprising measuring light reflected from an ocular surface and comparing the measured light to a reference.
2. The method of Claim 1 wherein the subject is human.
3. The method of Claim 1 that further comprises projecting light from a light source on to the ocular surface.
4. The method of Claim 3 wherein the light source is a light emitting diode.
5. The method of Claim 1 wherein the light measured is red or infrared light.
6. A method for treating an eye of a subject, the method comprising sensing the state of the eye by the method of Claim 1, and controlling whether a substance is delivered to the eye whereby the substance is so delivered only when the eye is sensed to be open.
7. The method of Claim 6 wherein the subject is human.
8. The method of Claim 6 that further comprises projecting light from a light source on to the ocular surface.
9. The method of Claim 8 wherein the light source is a light emitting diode.
10. The method of Claim 6 wherein the light measured is red or infrared light.
11. The method of Claim 6 wherein said sensing and controlling steps are configured to permit detection of a blink and lockout of delivery of the substance for at least the duration of the blink.
12. The method of Claim 6 wherein light reflected from the ocular surface is measured with a sampling frequency of at least about 20 Hz.
13. The method of Claim 6 wherein light reflected from the ocular surface is measured with a sampling frequency of at least about 50 Hz.
14. The method of Claim 6 wherein light reflected from the ocular surface is measured with a sampling frequency of at least about 100 Hz.
15. The method of Claim 6 wherein the substance delivered is useful for diagnosis, prevention or treatment of an ophthalmic condition or disorder selected from the

group consisting of allergic diseases of the eye, dry eye, keratomalacia, trauma to the eye and adjacent tissues, orbital cellulitis, chronic conjunctivitis, episcleritis, scleritis, superficial punctate keratitis, phlyctenular keratoconjunctivitis, interstitial keratitis, corneal ulcer, uveitis, Behcet's syndrome, sympathetic ophthalmia, endophthalmitis, exophthalmos, bullous keratopathy, dacryostenosis, acute and chronic dacryocystitis, trichinosis, infective diseases of the eye, acute retinal necrosis, chalazion, inversion and eversion of eyelids, neoplastic diseases, cataract, cycloid macular edema, birdshot choroidopathy, reticulum cell sarcoma, vascular retinopathies, diabetic retinopathy, macular degeneration, retinal detachment, retinitis pigmentosa, glaucoma, papilledema, papillitis, retrobulbar neuritis, toxic amblyopia, optic atrophy, presbyopia, and ocular motility disorders.

16. The method of Claim 6 wherein the substance delivered is an ophthalmic drug selected from the group consisting of demulcents, antimycotics, antibacterials, antivirals, steroids, NSAIDs, selective cyclooxygenase-2 inhibitors, acetylcholine blocking agents, adrenergic agonists, beta-adrenergic blocking agents, carbonic anhydrase inhibitors, prostaglandins, antihypertensives, antihistamines, anticataract agents, and topical and regional anesthetics.
17. The method of Claim 6 wherein the substance delivered is an ophthalmic drug selected from the group consisting of acebutolol, aceclidine, acetylsalicylic acid, N⁴ acetylsulfisoxazole, alclofenac, alprenolol, amfenac, amikacin, amiloride, aminocaproic acid, *p*-aminoclondidine, aminozolamide, anisindione, apafant, atenolol, azithromycin, bacitracin, benoxaprofen, benoxinate, benzofenac, bepafant, betamethasone, betaxolol, bethanechol, brimonidine, bromfenac, bromhexine, bucloxic acid, bupivacaine, butibufen, carbachol, carprofen, cefixime, cefoperazone, cefotaxime, ceftazidime, ceftizoxime, ceftriaxone, celecoxib, cephalexin, chloramphenicol, chlordiazepoxide, chlorprocaine, chlorpropamide, chlortetracycline, cicloprofen, cinmetacin, ciprofloxacin, clidanac, clindamycin, clonidine, clonixin, clopirac, cocaine, colistin, cromolyn, cyclopentolate, cyproheptadine, demecarium, dexamethasone, dibucaine, diclofenac, diflusinal, dipivefrin, domeclocycline, dorzolamide, doxycycline, enoxacin, epinephrine, erythromycin, eserine, estradiol, ethacrylic acid, etidocaine, etodolac, etoricoxib,

fenbufen, fenclofenac, fenclorac, fenoprofen, fentiazac, flufenamic acid, flufenisal, flunoxaprofen, fluorocinolone, fluorometholone, flurbiprofen and esters thereof, fluticasone propionate, furaprofen, furobufen, furofenac, furosemide, gancyclovir, gentamicin, gramicidin, hexylcaine, homatropine, hydrocortisone, ibufenac, ibuprofen and esters thereof, idoxuridine, indomethacin, indoprofen, interferons, isobutylmethylxanthine, isofluorophate, isoproterenol, isoxepac, ketoprofen, ketorolac, labetolol, lactorolac, latanoprost, levo-bunolol, lidocaine, lonazolac, loteprednol, mafenide, meclofenamate, medrysone, mefenamic acid, mepivacaine, metaproterenol, methacycline, methanamine, methylprednisolone, metiazinic, metoprolol, metronidazole, minocycline, minopafant, mioprofen, modipafant, nabumetome, nadolol, namoxyrate, naphazoline, naproxen and esters thereof, neomycin, nepafenac, nitroglycerin, norepinephrine, norfloxacin, nupafant, olfloxacin, olopatadine, oxaprozin, oxepinac, oxyphenbutazone, oxyprenolol, oxytetracycline, parecoxib, penicillins, perfloxacin, phenacetin, phenazopyridine, pheniramine, phenylbutazone, phenylephrine, phenylpropanolamine, phospholine, pilocarpine, pindolol, pirazolac, piroxicam, pirprofen, polymyxin, polymyxin B, prednisolone, prilocaine, probenecid, procaine, proparacaine, protizinic acid, pyrimethamine, rimexolone, rofecoxib, salbutamol, scopolamine, silver sulfadiazine, sotalol, sulfacetamide, sulfanilic acid, sulfisoxazole, sulindac, suprofen, tenoxicam, terbutaline, tetracaine, tetracycline, theophyllamine, timolol, tobramycin, tolmetin, travoprost, triamcinolone, trimethoprim, trospectomycin, unoprostone, valdecoxib, vancomycin, vidarabine, vitamin A, warfarin, zomepirac and pharmaceutically acceptable salts, esters and prodrugs thereof.

18. The method of Claim 6 wherein the substance delivered comprises at least one antiglaucoma agent.
19. The method of Claim 18 wherein the at least one antiglaucoma agent is a beta-adrenergic blocking agent.
20. The method of Claim 19 wherein the beta-adrenergic blocking agent is selected from the group consisting of betaxolol, timolol and salts thereof.
21. The method of Claim 18 wherein the at least one antiglaucoma agent is a carbonic anhydrase inhibitor.

22. The method of Claim 21 wherein the carbonic anhydrase inhibitor is dorzolamide or a salt thereof.
23. The method of Claim 18 wherein the at least one antiglaucoma agent is a prostaglandin.
24. The method of Claim 23 wherein the prostaglandin is a PGF_{2α} derivative.
25. The method of Claim 24 wherein the PGF_{2α} derivative is selected from the group consisting of latanoprost, travoprost and unoprostone.
26. The method of Claim 18 wherein the substance delivered comprises a PGF_{2α} derivative in combination with at least one drug other than a PGF_{2α} derivative.
27. The method of Claim 26 wherein the at least one drug other than a PGF_{2α} derivative is a beta-adrenergic blocking agent.
28. The method of Claim 27 wherein the PGF_{2α} derivative is latanoprost and the beta-adrenergic blocking agent is timolol.
29. The method of Claim 18 wherein the substance is delivered in a dosage amount effective for treatment or prophylaxis of an ophthalmic disease or disorder selected from the group consisting of ocular hypertension, congenital glaucoma, open-angle glaucoma, acute angle-closure glaucoma, chronic angle-closure glaucoma, secondary glaucoma arising from pre-existing ocular disease, retinal vascular diseases, diabetic retinopathy, and non-glaucomatous ischemia.
30. A device for sensing the state of an eye, the device comprising a light source that directs light to an ocular surface of a subject, and a sensor for measuring light reflected from the ocular surface.
31. The device of Claim 30 that further comprises a standoff to position and orient the sensor at a consistent distance from and angle to the eye.
32. The device of Claim 31 wherein the standoff comprises an eye-cup having a distal rim adapted to contact a surface of the subject's face around the eye.
33. An apparatus for treating an eye of a subject, the apparatus comprising a device for sensing the state of an eye, an applicator for delivering a substance to the eye, and a control system that permits delivery of the substance when the sensing device detects

that the eye is open but prevents delivery of the substance when the sensing device detects that the eye is closed; said sensing device comprising a light source that directs light to an ocular surface of a subject, and a sensor for measuring light reflected from the ocular surface.

34. The apparatus of Claim 33 that further comprises a standoff to position and orient the sensor at a consistent distance from and angle to the eye.
35. The apparatus of Claim 34 wherein the standoff comprises an eye-cup having a distal rim adapted to contact a surface of the subject's face around the eye.
36. The apparatus of Claim 33 wherein said sensing device and said control system are configured to permit detection of a blink and lockout of delivery of the substance for at least the duration of the blink.